TECHNICAL SPECIFICATIONS

LICENSE FOR "*ANTENNA EM SIMULATION SOFTWARE PACKAGE*"

The "*antenna EM simulation software package*" must be able to model and simulate the antenna performance, including all optical components such as mirrors, lenses and diffractive elements. In particular, it must be able to run simulations even when the model includes optical elements with very different electrical diameters (D/lambda), and in particular large-diameter antennas, such as those operated by INAF.

The software package, which may be composed by a single tool or a combination of modules, must also have the following key capabilities:

- Create 3D models of antennas and auxiliary optical elements, and specify their geometrical and material properties;

- Facilitate the creation of models with the aid of semi-automated tools that can combine both on-axis and off-axis optical components;

- Visualize and analyze the propagation properties of Gaussian beams in the near field;

- It must be able to import an external geometrical object as a CAD file of format STEP or IGES;

- It must be able to compute electromagnetic fields in both the near and far zones of the antenna and its auxiliary optical components. The computation must be able to use a variety of numerical and mathematical methods, including PO+PTD and GO+GTD;

- It must be able to compute electromagnetic fields using the Method of Moments (MoM) or the Multi-Level Fast Multipole Method (MLFMM) method, an accelerated version of MoM, which allows a large reduction in memory and computational time;

- It must be able to utilize built-in optimization algorithms to find the best optical design based on specified criteria.

The "*antenna EM simulation software package*" must allow perpetual use of the software, without limitations or time limits.

The offer must also include technical support and maintenance, for all such "*software package*", for at least one year, starting from the date the order is finalized.